

## CHAPTER 6

### WHICH HISTORIC ROADS ARE WORTHY OF PRESERVATION?

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The “historical and cultural foundations of the Nation should be preserved as a living part of our community life in order to give a sense of orientation to the American people” (National Historic Preservation Act [16 USC 470(b)(2)]).

Historic preservation and cultural resource management are all about conserving physical remnants of our nation’s heritage. The National Historic Preservation Act is focused on the remains of the past rather than history per se, and National Register is a list of properties deemed worthy of preservation (National Park Service 2002). But like beauty, worthiness for preservation might be said to be in the eye of the beholder.

Historical significance and National Register eligibility are not things that can be tripped over or found unexpectedly in the built environment. Rather, significance is something that is defined and built with historical analysis and narrative. The National Park Service recognizes that intellectual history imbues National Register properties with meaning, and has defined criteria for listing on the National Register to give structure to the subjectivity of eligibility evaluations.

Because creative intellects are, in principle, unlimited a sufficiently bright and motivated scholar could develop a historic context to argue that all surviving physical remnants of the past are associated with national, state, or local historic themes in one way or another. However, a simple association with an aspect of history cannot stand as a sufficient reason for preservation. To be eligible for the National Register a property must have an association with an **important** event or broad pattern of our history; or to an **important** person; or it must be the work of a master or represent an **important** architectural, engineering, or artistic achievement; or it must provide **important** information. Additionally, a property must retain sufficient integrity with respect to that association so that it conveys its significance. Admittedly, what is “important” and what constitutes “sufficient integrity” are open to debate.

In practice, historic preservationists and cultural resource managers develop a mutual understanding of appropriate standards, strategies, and procedures for defining what is worthy of preservation and give consistency to evaluations of National Register eligibility. However, consensus procedures are dynamic and they evolve. This study found that evaluating what historic roads are worthy of preservation is difficult because a consensus has yet to be developed.

Unless exceptional in some way, roads have only recently been considered as potential historic resources. The National Task Force for Historic Roads, a division of the Rural Heritage Program of the National Trust for Historic Preservation, and the Westchester County (New York) Department of Planning, sponsored the first regional Conference on Historic Roads in 1995 (Marriott 1998:24). At the 1996 annual convention of the National Trust for Historic Preservation, a sell-out crowd attended the presentation, “Saving Historic Roads.” A follow-up presentation at the 1997 annual convention, “Saving Historic Roads, Part Two,” again attracted a large crowd, as did the day-long field session investigating Route 66 between Santa Fe and Albuquerque, New Mexico. The National Trust for Historic Preservation, as well as the National Park Service and the California Department of Transportation sponsored “Preserving the Historic Road in America,” the first national conference on historic roads held March 1998 in Los Angeles. The first book to address historic roads management, *Saving Historic Roads* (Marriott 1998), was published only recently. The National Park Service is working on a National Register Bulletin to address historic roads but it has not yet been published (Marriott 1998:129).

To date, only a few states have developed statewide contexts for historic roads. In 1991, the California Department of Transportation commissioned a planning study entitled *Historic Trails and Roads in California* (Owens 1991). The first volume, *Historical Context and Typology*, has been useful for cultural

resource managers in the state, but the second volume, *Trail and Road Inventory and Historical Evaluation Process*, has proven less valuable. In 1992, the Arizona SHPO developed the historic context, *Automotive Transportation in Arizona, 1900-1940* (Rodda 1992). This document examined roadside property types such as tourist courts and service stations, but did not examine the roads themselves. In 1994, the Wyoming Department of Transportation prepared a *Historic Context and Evaluation of Automobile Roads in Wyoming*. This evaluation acknowledges the historical significance of state and federal highways in Wyoming, but concludes that ongoing maintenance and upgrading of the roads has destroyed their integrity. Although the Wyoming SHPO has not formally accepted this evaluation, the Wyoming Department of Transportation has been using this context and evaluation as operational policy (Julie Francis, personal communication, 1997). In 1996, the New Jersey Department of Transportation undertook development of a context for the National Register evaluation of historic highways in the state, dating from the late eighteenth century through the mid-twentieth century. The Department of Transportation envisions this study will be used to seek a consensus with the New Jersey SHPO about strategies and practices for addressing historic roads (Andrea Tingey, personal communication, 1998).

The next section of this chapter identifies some of the special challenges of evaluating the National Register eligibility of roads. The subsequent section discusses some considerations for each of the four National Register criteria of significance as well as issues of assessing historic integrity. No claims are made that this discussion resolves these issues, but it is presented as a step toward developing an acceptable working consensus on how to identify what roads are worthy of preservation.

## **SOME CHALLENGES IN EVALUATING HISTORIC ROADS**

Evaluating the National Register eligibility of old roads often has some special challenges. Six common problems are discussed in the following sections.

### **Where Does It All End?**

National Register guidance indicates that for purposes of National Register nomination roads should be classified as “structures” (that is, functional constructions made for purposes other than human shelter), but defining boundaries for long, linear structures that can extend for hundreds of miles is a unique challenge. The most appropriate places to draw boundary lines are at the ends of an entire length of road, rather than just a segment, but they are not always easy to identify. Boundary definition is easier for officially designated routes. For example, in the 1920s, the Arizona State Highway Engineer designed U.S. Highway 80 to begin in Arizona at Yuma and continue east to the New Mexico border. Therefore, it is relatively easy to identify the boundaries of this property, but a researcher dealing with a project that crosses the highway at one narrow location obviously faces a problem in evaluating that small segment of a potential historic property that extends for hundreds of miles.

### **Long Roads, Short Dollars**

Typically, a cultural resource management project is defined and funded to conduct survey and evaluation within a defined area of potential effect. If an old road crosses through and beyond the defined study area, how can the integrity of the recorded segment be compared to the rest of the road beyond the study area? Is the recorded segment the best preserved or rare? Lack of knowledge about the entire road also might limit the perspective for appropriate mitigation measures.

### **The Spaghetti Problem**

When they cannot be avoided, old buildings often are completely demolished to accommodate new construction on the same site. In contrast, highway projects more often than not involve upgrades of existing roads and sometimes portions of the old road are left intact. Segments of the old road that do meet new standards for grades and curves are widened and paved (or re-paved), a process that can destroy the historic integrity of the original road. Other portions of an old road may be brought up to new standards by changes in horizontal and vertical alignment, a process that sometimes spares “ox-bow” remnants of the original road. In some cases, some segments of an old road may be so steep or narrow that an entirely new alignment is selected, leaving substantial segments of an old road intact.

As road construction methods and standards have improved over the decades, two or three or more versions of a road may be built along the same route, creating the “spaghetti problem.” Confounding as it may be to confront the entangled lines on the map, the good news is that the process of road construction leaves segments of some old roads intact. If all new roads followed the exact alignment of all old roads, there would be no “spaghetti problem,” but there also would be no old roads to preserve.

### **If It’s Old, It’s Eligible**

Researchers encountering a primitive road have a tendency to leap to the conclusion that “If it’s old, it must be eligible for the National Register.” The more appropriate reasoning is “If it has documented historical significance and retains integrity, it’s eligible for the National Register.” This requires historical research to determine whether the physical remnants have important historical associations. Historic documentation of minor roads often is meager, and important associations cannot be identified.

### **All History, No Road**

This problem is the flip side of the previous problem. In contrast to a road with no history, this is the problem of a history with no historic road. Several of the most important transportation corridors across the state have lost integrity with respect to their periods of significance, and so it is impossible to match the important history with anything on the ground. As an example, the 243 miles of Territorial highways built between 1909 and 1912 no longer exist on the ground. These Territorial highways were dirt roads with only a few stretches improved with oil or gravel, and they have been upgraded and paved over the years. The Territorial highway system was obviously important because it evolved into the state and federal highways that connect Arizona cities and towns today. However, we are unlikely to find much on-the-ground evidence of these highways, although there may be a few isolated “oxbows” of abandoned dirt or gravel alignments still in existence.

### **The Ubiquity Problem**

The problems identified above relate to the difficulties of assessing a single road, but they pale in comparison to a larger problem with roads—their ubiquity. There are “good roads everywhere” across Arizona, and many of them look alike. In evaluating the National Register eligibility of historic roads, the staggering number of examples must be considered. This problem is not unique to roads. Preservationists today must evaluate post-World War II suburban developments. The thousands of ranch-style houses that are becoming 50 years old in Phoenix alone is a good example of the issues of ubiquity. While hundreds, if not thousands, of miles of two-lane bituminous roads may share in the rich history of road building in Arizona, they are very similar in appearance.

How can a road convey historical significance? Just as a building can convey its history through stylistic details such as fenestration and massing, the age of a road can be conveyed through the details of road architecture, including roadway width, surfacing, shoulder treatment, and associated features.

Although it can be generalized that modern roads are wider than their 1920s counterparts, the evolution of change has been gradual. It is not possible to link road width directly to a construction date in the same way that a historian of modern material culture can pinpoint the manufacture date of a “pop top” soda can between 1962 and 1974 (the years between the invention of the pull-ring opener and its evolution into the stay-on tab). The 1921 Federal Highway Act specified a standard of at least 18 feet for the width of two lane roads in the federal system of highways, and in general, roads built in Arizona before about 1930 were no wider than that standard. In the words of the Arizona State Highway Department,

“Most of the construction until 1928 consisted mainly of grading, and graveling roads to 6 inches in depth and 18 feet wide. Until 1930, two-lane bituminous surfaces were 18 feet wide. From 1930 to 1937, they were constructed to a 20 foot width and since 1937 to a 22 foot width” (State Engineer 1939:22).

Concrete, asphalt, and gravel have been used simultaneously to surface Arizona roads since about 1920, and none can be relied upon to indicate a specific date of construction. The history of a single road may include a series of surface treatments from dirt to grading, from oiling to gravel, and from concrete to asphalt. Road safety features such as guardrails and shoulders also are not good indicators of road age because the highway department is constantly upgrading these features to evolving safety standards. In addition, the highway department has installed different types of guardrails—and different shoulder treatments—during the same time period as dictated by different road situations.

The net result of Arizona highway standards and practices is a network of similar looking roads. Whether originally planned as a segment of the Territorial highway system, included in the state highway system, constructed with federal aid, improved with Depression-era funding, or built by a municipal or county government, two-lane bituminous roads across level terrain look very similar to one another.

## **THE PROCESS OF EVALUATING NATIONAL REGISTER ELIGIBILITY**

Age, significance, and integrity are the cornerstones of National Register eligibility. National Register Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, defines a two-step process for evaluating National Register eligibility (National Park Service 1998). The first step is to determine age and historic significance by considering the applicable National Register criterion or criteria. The second step is to assess whether the property retains sufficient historic integrity to convey its significance. Long structures like roads may not retain historic character defining elements throughout their entire lengths, but that would not eliminate them from National Register eligibility if one or more segments are sufficiently intact to convey their historic values.

### **Evaluating Significance**

Evaluating the National Register eligibility of a road requires documenting its characteristics and archival research. Primary sources of information about roads are historic maps, including those from the General Land Office, U.S. Geological Survey, and state and local government agencies. Contemporary newspaper articles from the time the road was built, or paved, or improved, may provide clues as to its importance. *Arizona Highways* articles may discuss the technological advances involved in the construction of the road, and may document any association with prominent road engineers, landscape architects, or planners.

Historic photographs and postcards also may provide clues. Records of the Territorial Assembly may provide information on nineteenth-century toll wagon roads, and records on file at ADOT may provide other valuable information.

Once a road is recorded and its history has been outlined, the evaluation of its National Register eligibility must turn to consideration of the road's significance within the appropriate historic context. National Register guidelines define historic contexts as "those patterns or trends in history by which a specific occurrence, property, or site is understood and its meaning (and ultimately its significance) within history or prehistory is made clear" (National Park Service 1998:7). Defining the appropriate context is the key challenge. The absence of well-defined historic contexts for vehicular roads in Arizona has hindered consistent evaluations. This historic overview was prepared to provide perspective for defining appropriate historic contexts. The following sections discuss how each National Register criteria of significance can be applied to roads.

## Criterion A

Criterion A applies to those historic roads that are "associated with an event or events that have made a significant contribution to the broad patterns of our history." At first glance, this is a daunting challenge because nearly every historic event of the twentieth century in Arizona can be associated in some way with a road. President Theodore Roosevelt traveled the Apache Trail on the day he dedicated the new dam named for him in 1911. In the 1920s, farmers delivered citrus and cotton to the railroad over rural roads, and miners drove their cars along new state highways to seek jobs in Jerome, Bisbee, and Morenci. Escapees from the 1930s Dust Bowl followed U.S. Highway 66 across northern Arizona to look for work and better lives in California. World War II flyers drove State Route 85 between Ajo and Gila Bend during their flight training on the gunnery range.

However, and this is a very important "however," under National Register guidelines it is not enough for an old property simply to be associated with events that have made a significant contribution to the broad patterns of our history. The property must have an **important** association with the historical event or patterns. Some important facets of our history simply are not directly connected to the built environment, and not all elements of the built environment relate to historically important themes. Several statewide historical contexts already developed, including those for the military, mining, and commercial histories of Arizona, do not include roads as associated property types because the authors of these historical contexts did not consider roads to have an important association with the events of their particular histories. Thus, although it is tempting to suggest that a road is historically significant because it is associated with Arizona tourism, cotton production, or copper mining, the association with such historical events and patterns must be direct and important rather than tangential.

Often roads are thought of as important because they "opened up" areas to settlement. However, most county and state highway department road projects improve existing routes in response to demands of growing traffic or evolving safety standards. Although the new and improved roads may enhance development, the service areas were "opened up" long before. Even Girard's Territorial highways, the earliest highways built in Arizona, improved existing routes to connect county seats rather than to "open up" new areas for settlement.

Roads certainly might achieve significance because of associations with important Arizona themes such as tourism, mining, or agriculture, but because this overview was prepared to address ADOT's challenges of managing a network of roads, it focuses on how roads can achieve historical significance with the historical context of road development. As discussed in Chapter 4, an important facet of the history of road building in Arizona is the story of how they came to be funded. From this perspective, the evolving

territorial, state, and federal government programs for promoting road construction can provide a framework for considering the National Register eligibility of vehicular roads in Arizona Criterion A: These include the following themes and time periods:

- Military Wagon Roads, 1846-1909
- Privately Built Toll Wagon Roads, 1864-1891
- Territorial Highways, 1909-1912
- State Highway System, 1912-1939
- Federal Aid Projects, 1917-1933
- Roads Built on Federal Lands, 1917-1926
- Depression-Era Road Projects, 1934-1939
- Road Construction during World War II, 1941-1945
- Outstanding Road Engineering, 1912-1956

A good example of a road that can be considered significant within the context of military wagon roads from 1846 to 1909 is the Beale Wagon Road. The two territorial highways are significant within the theme Territorial highways from 1909 to 1912. The Apache Trail, initially improved during the construction of Roosevelt Dam and incorporated into the east-west Territorial highway and then the state highway system, is an important example of two themes, Territorial highways from 1909 to 1912, and the state highway system from 1912 to 1939. The nationally significant Route 66 is important in Arizona history within at least two themes, the state highway system from 1912 to 1939, and Depression-era road projects from 1934 to 1939, because it was designated as the third state highway in 1913, and paved with federal aid in the 1930s.

Because most of the Depression-era projects focused on improving existing routes in a piecemeal fashion, it will be relatively rare to find an Arizona road that will achieve significance in this theme alone. Two examples of roads built (not simply improved) with Depression-era funds are U.S. Highway 60 from Globe to Show Low, and U.S. Highway 93 from Kingman to Boulder Dam. Important enough at the time to be touted in a 1935 summary of 10 outstanding Civil Works Administration-Federal Emergency Relief Administration projects, the improvements to State Highway 79 (now U.S. Highway 89A) from Jerome to Clarkdale can be considered important under Criterion A because of the project's association with Depression-era make-work road projects in Arizona.

Some roads constructed to access military installations during World War II can be important under the theme of road construction during World War II from 1941 to 1945. An example is the six-mile stretch of State Route 92 built to connect Fort Huachuca with State Route 82.

An example of the inappropriate application of Criterion A can be found in the fascination with private highways. Researchers have often asserted the historic significance of an old road because of its association with the designated route of the flamboyantly named "Atlantic-Pacific Highway," the "Ocean to Ocean Highway," or the "National Old Trails Road." While private highway associations in other states did construct roads, in Arizona they simply chose previously established routes and marked them with roadside signage or map notations. The state and federal government, not the private highway associations, funded and built these highways in Arizona. Many of their chosen routes coincided with the 1909 Territorial highways, most were incorporated into the 1921 seven percent system, and all were important enough to be included in the state highway system by 1929 (Arizona State Highway Department 1939:16-17). Thus, the 10 private highways designated in Arizona may be important, but the roads themselves do not achieve historical significance because of their association with private highway associations. These roads are more appropriately evaluated under historical themes of Arizona road construction such as the state highway system from 1912 to 1939.

## **Criterion B**

Criterion B applies to historic roads that are “associated with the lives of persons significant in our past,” and is applied infrequently to historic roads. Of the 73 historic American roads listed on the National Register to date, only four are associated with an important person (refer to Appendix C).<sup>1</sup>

Good examples of Arizona roads that are important under Criterion B include the Beale Wagon Road and the General Crook Trail, each associated with the career of a famous nineteenth-century military figure and falling within the theme of military wagon roads from 1846 to 1909. The first north-south road to Prescott, built by the Prescott, Walnut Grove, and Pima Road Company of King Woolsey, Jack Swilling, and others, also could be considered important under Criterion B within the theme of privately built toll wagon roads from 1864 to 1871 (refer to Table 3).

A poor, or at least an undemonstrated, example of assigning historical significance under Criterion B is the Hunt Highway and its connection, if any, with Arizona Governor George W. P. Hunt. Present-day maps depict the Hunt Highway running due east from Price Road to Ellsworth Road at the southern edge of Maricopa County, angling to the southeast and paralleling the Union Pacific Railroad (formerly Southern Pacific) tracks to Poston Butte north of Florence, and turning east again to intersect with State Route 79. However, on a 1939 Arizona State Highway Department map, only portions of the road appear and they are labeled as “unimproved, inquire locally for road condition.” It would appear that the Hunt Highway has no connection to the state highway system, the federal seven percent system, federally funded road improvement projects in the 1930s, or military road-building in World War II. Further research is needed to understand the connection, if any, between this two-lane road and the state’s first governor. Other poor hypothetical examples would be the assertion that the Pinal Pioneer Parkway is significant because the Hollywood cowboy actor Tom Mix met his death on that road, or that the Squaw Peak Parkway in Phoenix is significant because Nancy Reagan traveled on it from the airport during visits to her father’s home at the Arizona Biltmore Estates.

## **Criterion C**

Criterion C applies to those historic roads that “embody the characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values.” The design of a road, important construction techniques, or outstanding feats of engineering may qualify a road as significant under Criterion C. Roads that can be attributed to the “work of a master” architect, planner, engineer, or designer may also be significant under Criterion C.

Sixteen of the 73 American historic roads currently listed in the National Register refer to the designer, planner, engineer, or surveyor of the road (some of these, however, are not listed under Criterion C) (Marriott 1998:180-201; refer to Appendix C). Chief among these road planners is the landscape architect Frederick Law Olmsted, whose parks and parkways designed for horse and carriage traffic in the late nineteenth century became automobile roads in the twentieth century. Perhaps the most famous example of Olmsted’s work is Riverside Park and Drive in New York City, designed in 1874. Seven other

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<sup>1</sup>A segment of the Bridger Immigrant Road in Big Horn County, Wyoming, is attributed to the pathfinding work of mountain man Jim Bridger, and the Old Mountain Road in Albemarle County, Virginia, is associated with Thomas Jefferson and Merriwether Lewis. Merritt Parkway in Fairfield County, Connecticut, was named after the U.S. Congressman who promoted the new road in the 1930s, and Riverside Drive in New York City was redone in the 1930s by then-mayor Robert Moses (Marriott 1998:183, 190, 199, 201).

examples of Olmsted-designed parkways have been listed on the National Register.<sup>2</sup> Five current National Register listings for historic roads cite the names of planners, two listings mention engineers, and one listing notes the surveyor of the route.<sup>3</sup>

Those outstanding feats of engineering, design, and construction that put highways around, over, and sometimes through the natural obstacles of hills, canyons, and rock walls are important aspects of the history of road development. Within the context of road building in Arizona, roads can be evaluated under Criterion C within the context of outstanding road engineering from 1912 to 1956. Another important engineering and construction theme of railroad grade crossing improvements from 1936 to 1942, is included in an earlier study of historic bridges in Arizona (Fraserdesign 1987).

Good examples of Arizona historic roads that are important within the theme of outstanding road engineering from 1912 to 1956 are the Apache Trail with its Apache-built retaining walls and culverts, and U.S. Highway 60 through the Salt River Canyon. Similarly, the first paved highways in Arizona are significant under Criterion C, including the Bisbee-Douglas segment of U.S. Highway 80 and the Geronimo-Solomonsville segment of U.S. Highway 70, both paved between 1917 and 1921 (refer to Table 12).

An inappropriate application of Criterion C to historic roads is the trap of “antique charm,” and the logic that “If it’s old, it’s significant.” The presence of old culverts or retaining walls does not automatically demonstrate historical significance under Criterion C. Only if the associated road is important within a specific context or it can be demonstrated that such old features are rare examples of once common types might they be regarded as significant under Criterion C. A second misunderstanding of the application of Criterion C may emerge from road nomenclature. Despite the name, Frank Lloyd Wright did not design the eponymous boulevard in Scottsdale, and the road is not the work of a master.

## **Criterion D**

Criterion D applies to those historic roads that “have yielded, or may be likely to yield, information important in prehistory or history.” Assessing a roadbed as significant under Criterion D asserts that the property has the potential to yield important information. It is true that important information might be recovered through excavation of archaeological sites such as historic roadside construction camps, and through the collection of historic road-associated artifacts such as horseshoes, soda and beer bottles, discarded tires, and license plates. However, often the history of the road itself can be best understood from archival and documentary sources.

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<sup>2</sup>These include the Cazenovia Park-South Park System and the Delaware Park-Front Park System in Buffalo, New York (both listed under Criterion C); the Eastern Parkway (Criterion C) and the Ocean Parkway (Criterion A) in Kings County, New York; Lake Park in Milwaukee, Wisconsin; the Kentmere Parkway in New Castle County, Delaware (Criteria A and C); and the Back Cove Esplanade in Cumberland County, Maine (Criterion C) (Marriott 1998:179-201).

<sup>3</sup>Planners are cited by name in National Register listings for the Merritt Parkway in Connecticut; the St. Joseph Park and Parkway System in Missouri; the South Parkway and the Memphis Parkway in Tennessee; and the Zion-Mt. Carmel Highway in Utah (all Criteria A and C). Engineers for Foote’s Crossing Road in the Gold Country of California (Criterion A) and the Trail Ridge Road through Rocky Mountain National Park in Colorado (Criteria A and C) are mentioned by name, as is the 1821 surveyor of Robinson Road in Leake County, Mississippi, Raymond Robinson (Criterion A). (Marriott 1998:179-201).



There are few aspects of road construction technology that can be meaningfully researched through archaeological investigations. Only rarely is archaeological study of a roadbed alone likely to yield valuable historical information. Similarly, unless road-related features such as culverts, bridges, and retaining walls are not documented in archival records, archaeological recording is unlikely to provide important information. Without an associated archaeological site, a scatter of roadside artifacts usually would not be considered significant under Criterion D.

This position is supported by previous work. Although the National Register of Historic Places Multiple Property Documentation Forms for U.S. Route 66 in New Mexico and Arizona each suggest that abandoned segments of the road have “essentially become archaeological sites,” neither researcher suggests the road segments are significant under Criterion D (Cleeland 1988; Kammer 1993). Another example is the eloquent determination of eligibility for a section of U.S. Highway 50 in Northern California, which concludes that segments of the old highway are eligible under Criteria A, B, and C, but makes no argument for the eligibility of any segments under Criterion D (Supernowicz 1993:72).

### **Assessing Integrity**

A conclusion that a road is historically significant under any National Register criterion is not sufficient for National Register listing. The documented significance of a property must be coupled with demonstrated historical integrity in order to establish eligibility for listing in the National Register. National Register guidelines state that “integrity is the ability of a property to convey its significance.” The guidelines recognize seven aspects of integrity (location, design, setting, materials, workmanship, feeling, and association), and require a property to “possess several, and usually most, of the aspects” to be eligible for the National Register (National Park Service 1998:44).

### **The Seven Aspects of Integrity**

To establish integrity of **association**, a road segment must be identified in an appropriate historical context. Comparison of the current alignment of a road with one or more appropriately dated maps or any available as-built drawings can be the basis for establishing integrity of **location**.

An assessment of the integrity of **setting** should consider the surrounding landscape of a road during its period of significance and then determine if that landscape has been substantially altered. A segment of a historic highway that served as main street to a small Arizona town may retain integrity of setting if a majority of the original roadside buildings remain. Similarly, a segment of historic highway served by roadside commercial properties such as motels, gas stations, and diners may retain integrity of setting if a majority of the roadside buildings remain. Another example of good integrity of setting would be an early state highway built as a rural road that retains its rural setting. In contrast, an originally rural highway overtaken by suburban development, or a rural highway that has been become the access road for an interstate highway has lost integrity of setting. Simply put, a road has lost integrity of setting when its surroundings no longer resemble the surroundings during its period of significance.

The purpose of a road is to connect one point to another, and thus, the linearity of a road may be its most defining characteristic. To retain integrity of **feeling**, a road segment must be long enough to convey that linearity or connectivity, but precisely defining how long that is will require site specific assessment. One researcher suggested that an “ideal would be an uninterrupted view down the road to the horizon” but admits that “measured limits cannot be reasonably set for this requirement” (Cleeland 1988). A California study suggested that “a minimal length of 1000 feet is necessary to illustrate the basic linear nature of the

road system” but adds that “the 1000-foot figure should serve only as a guide, rather than a finite number. In certain instances . . . a minimal length of 100 feet may be adequate” (Supernowicz 1993:70-71).

To establish structural integrity, that is, integrity of **materials**, **design** and **workmanship**, the researcher should consider the period of significance for the existing road segment, and then determine if it displays the materials, design, and workmanship for a road from that time period. In the field, the researcher should examine and characterize the following aspects of the road:

- (a) condition
- (b) surface (two-track, graded dirt, gravel, or paved)
- (c) width (exclusive of shoulders)
- (d) vertical alignment (grade, cut banks, and fill slopes)
- (e) horizontal alignment (radii of curves)
- (f) edge (presence or absence of shoulders, clear zone)
- (g) associated features (guardrails, retaining walls, culverts, tunnels, overpasses, bridges)

The surface of a road displays the **materials** used in its construction, or in subsequent maintenance and upgrading procedures. The intrinsic nature of roads demands periodic maintenance and resurfacing, and a historic road segment that exhibits original paving material will be unusual. Many historic roads in Arizona began as dirt two-track roads, were later improved with gravel, and then paved with concrete or asphalt. Thus, while retention of an original surface would be ideal, it is also highly unlikely and replacement of original materials with similar materials may not substantially limit the ability to convey historical significance.

The width of a road surface is an important characteristic to consider in evaluating integrity of **design**. The design of a road segment that has been widened since its period of significance has been compromised. Additional elements of road design include the vertical alignment of the road (grade, cut banks and fill slopes), and its horizontal alignment (tangents and curves). The presence or absence of shoulders or a cleared zone along the road edges is another element of road design. Integrity of **workmanship** can be determined by examination of features associated with the road, including guardrails, retaining walls, culverts, tunnels, overpasses, and bridges.

The period of significance dictates the appropriate elements of design and workmanship that must be considered. If, for example, a segment of the Bisbee-Douglas road is judged to be significant under Criterion A as a Territorial highway, then its period of significance is from 1909 to 1912, a time when the highways of Arizona were all two-lane gravel roads. Thus, an existing segment of that road widened or realigned during a 1930s road project has lost its integrity of design as a Territorial highway. If, however, the same road segment is considered important within the context of Depression-era road projects from 1934 to 1939, then it might retain integrity of design and workmanship with regard to that later theme.

### **Specific Aspects of Road Design and Workmanship**

Gravel, asphalt, and concrete have been used simultaneously to surface roads since 1920 and none of the three can be used as a time-specific marker for dating roads. To further confuse the issue, many concrete roads subsequently were overlain with asphalt as part of routine road maintenance. However, clues to road history can be found in the specifics of road pavement. During the late 1920s and 1930s, the weight of trucks bore heavily on the edges of narrow roads, causing cracks in concrete pavement. To combat this edge stress, engineers designed roads with thicker concrete along the edges, commonly about 8 to 10 inches thick with the middle of the road only about 6 to 7 inches thick. In the late 1940s, construction of

wider roads reduced edge stress and it became more economical to build roads of uniform thickness (Ray 1984:7). Thus, a concrete road of uniform thickness probably post-dates World War II.

Additional clues may help to date later concrete roads. A perennial problem with concrete roads had been the “bump, bump, bump” caused by joints in the road. By 1951, a new technique of sawing the hardened concrete with a diamond saw blade made a smoother seam and eliminated the “bump” (Ray 1984:11). By 1960, the “slipform” method of producing concrete, which uses a continuously moving form to shape the concrete, became widespread (Ray 1984:10). In the early 1970s, road engineers borrowed a technique from airport runways and began grooving concrete pavements to prevent hydroplaning (Ray 1984:13).

A better marker for road age than pavement is width. Since Roman times, major wagon roads were built about 18 feet wide, a width sufficient to allow two horse-drawn vehicles to pass each other. In the early twentieth century, the width of most roads in Arizona ranged from 14 feet to 18 feet (despite Arizona Territorial Engineer J. B. Girard’s 1909 recommendation of 16 feet to 24 feet). The Federal Highway Act of 1921 set a standard of at least 18 feet for the width of two-lane roads in the federal aid system.

In 1928, the national organization AASHO recommended a 20-foot road width for a two-lane road. The Arizona State Highway Department also recommended the 20-foot width for roads from 1930 to 1937, changing their recommendation to a 22-foot width in 1937. During the 1930s, road widths of 22 feet to 24 feet were common. Today, the standard width is about 24 feet for a two-lane road, not including shoulders or clear zones (Marriott 1998:92).

Curves and straight-aways make up the horizontal alignment of a road, while the vertical alignment consists of grades, as well as cuts and fills to mitigate slopes. An indication of relative age of a road can be determined by examining its horizontal and vertical alignments. Early roads followed the natural topography as much as possible because the dependence on manual labor or animal-powered equipment limited the volumes of earth that could be moved. Grades were as low as possible, so that animal-drawn wagons could negotiate them. As motorized vehicles became more commonplace and before mechanized road construction machinery became available, road grades increased due to the greater ability of the motorized vehicles to climb hills. For example, the road up Yarnell Hill in 1913 contained grades of 6 to 26 percent (Arizona Good Roads Association 1913:16). Introduction of mechanized road-building equipment after World War I allowed road builders to move dirt more economically, and they designed straighter, flatter roads (Gray 1995d:17).

Road safety features, including shoulders and guardrails, are not good indicators of road age because they are continually upgraded as standards evolve. In the early days of road construction before safety became an important issue, trees, telephone poles, and light poles often abutted the roads and presented hazards to drivers leaving the roadbed (Marriott 1998:87, 94-95). Shoulders have been included in road design at least since the AASHO recommended them in 1928 in their first standards of practice manual. The manual recommended shoulders 8 feet wide “when practicable.” In addition to shoulders, some roads now include “clear zones,” a safety measure that removes obstacles from areas beyond the shoulder.

The first guardrails were simply vertical wooden posts, installed along the edge of the roadway in the 1930s and painted white to warn drivers of curves. Improvements to the white poles were horizontal pieces of wood attached to the posts and also painted white. Another variation on guardrails was the post and cable barrier that involved addition of long steel cables between the white poles. This type of guard rail may be seen today on the 1932 Little Lithodendron Wash Bridge in Navajo County. Road engineers upgraded the steel cables stretched between posts to rounded steel beams attached to wood or steel posts. Later, they used the galvanized steel “W” beam attached to posts as guardrails. In the late 1950s, New

Jersey engineers designed the Jersey Barrier (also known as the Safety Shape), a concrete barrier used today both as guardrails and to separate lanes of traffic on divided highways (Ray 1984:13).<sup>4</sup>

Guardrails are not particularly sensitive date markers because the highway department installed different types of guardrails during the same period of time, according to the road situation. For instance, a 1941 photograph of U.S. Highway 66 illustrates simple white poles acting as guardrails alongside a straight stretch of road, while a 1937 photograph of another stretch of the same highway illustrates a denser installation of white poles with two steel wires acting as guardrails. This second stretch of road runs parallel to a railroad track and is slightly curved, a situation that required a sturdier guardrail system. A third photograph of a sharper curve on Highway 66 illustrates guardrails made of white poles connected with a steel band. A fourth type of protection for drivers on mountain curves were low masonry walls constructed of local cobbles, also illustrated by a 1930s photograph of Highway 66 (Smith 1941:26; Wallis 1990: facing pages 1, 4, 14).

Water is the enemy of roadbeds, and culverts and other types of cross-drainage structures allow water to pass under a road. In the 1920s and 1930s, the State Engineer built “gravel or concrete fords over dry washes and intermittent streams in the desert regions,” which were cheaper than culverts or bridges (State Highway Department 1939:22). There are several types of culverts, and sometimes they are easier to date than pavement and guardrails. Many of the 1930s and early 1940s concrete culverts carry a date on the abutment, stamped by a WPA construction crew. Round pipes, either concrete, corrugated metal, or smooth iron, can handle lesser water flows than box (square-shaped) culverts. Wooden box culverts typically pre-date concrete culverts. If a concrete culvert has been damaged and the interior structure is visible, reinforcing bars, or “re-bar,” can provide temporal clues. Square reinforcing bars date to the 1930s and are older than round re-bar. Some re-bar carries an identification number keyed to the manufacturer. Perhaps the most important clue that can be gleaned from a culvert is the width of the roadway it served.

## **ASSESSING POTENTIAL EFFECTS**

National Register evaluations of roads commonly are done within the context of considering effects of proposed projects in accordance with Section 106 of the National Historic Preservation Act. Therefore, if a road has been evaluated as historically significant and having sufficient historic integrity to be eligible for the National Register, then project effects must be assessed. Regulations state that “an undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion on the National Register” (36 CFR 800.9(a)). Thus, an informed determination of effect should address the criterion or criteria of significance that were met and what attributes of integrity were considered important in determining a road to be eligible for the National Register. For example, if a road is eligible largely because it maintains its integrity of setting, the installation of a new high-voltage electrical transmission line parallel to the historic road could be considered an adverse effect, but a re-paving of the road might not be considered an adverse effect. Alternatively, if a graded, unpaved road is eligible largely because it retains its integrity of materials, then a paving project might be considered an adverse effect.

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<sup>4</sup>Preservationists have been working to re-create historical guardrails to modern safety standards. Along the Columbia River Highway, the Oregon Department of Transportation replicated historic post and beam guard railing using wooden rails with a hidden steel backing. The National Park Service, working with the Federal Lands Highways Division of the FHWA, installed a steel-backed timber guardrail along the George Washington Memorial Parkway in Virginia. In addition, the National Park Service developed a new version of stone masonry guard walls with a concrete core (installed on Skyline Drive in Virginia), and simulated stone guard walls made of precast concrete (installed on Baltimore Washington Parkway in Maryland) (Marriott 1998:203-208, 210-211).

## CHAPTER 7

### CONCLUSION AND RECOMMENDATIONS

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The development of a system of roads throughout the nation and within the State of Arizona was an accomplishment of undeniable historical importance. Roads were and continue to be a vital component in the functioning of American society. However, evaluating the historical significance of individual roads can be a difficult. Because roads are long and linear, meaningful boundaries are often difficult to define. A living resource continually upgraded by state, county, and local agencies to meet growing needs and evolving safety standards, roads often present problems of integrity. Ubiquitous on the modern landscape, roads often are difficult to tie to specific significant historical events or broad patterns of history, and many are examples of very common types of roads that convey little sense of their history.

In complying with Section 106, ADOT encountered difficulties in evaluating the National Register eligibility of roads on one project after another. It was this challenge that stimulated this study. The initial attacks on the problem were unsuccessful in developing a “cookbook approach” for evaluating the historical significance of roads, and identified little common ground to work toward consensus among the various interested parties. The Section 106 perspective not only defined the impetus for this study, but in some ways, also thwarted new ways of thinking about which Arizona roads are or are not worthy of preservation. The major conclusion that eventually evolved over the course of this study is that it is much more productive to address that question by evaluating road systems or networks as a whole than it is to consider individual roads, or particularly road segments, one at a time. This holistic approach is reflected in *Interim Procedures for the Treatment of Historic Roads*, a document adopted by ADOT, FHWA, and SHPO in November 2002. These procedures are viewed as an interim step toward developing a Section 106 Programmatic Agreement and do not resolve the many disparate claims about what roads warrant preservation. Certainly more effort and time will be required to develop the Programmatic Agreement and develop practical, consistent procedures.

In this final chapter, some highlights of the study are summarized with respect to evaluating the historical significance and integrity of roads. Because this study languished for so long, some of this thinking has to some degree been overtaken by events and what once seemed so crucial or insightful about evaluating a particular road segment no longer seems so important within the context of evaluating entire road systems. Probably the most enduring product of this study will be the historical summary of how Arizona’s roads—particularly the state highway system—came to be built.

### HISTORICAL SIGNIFICANCE

The overview of the history of road development in Arizona, as discussed in Chapter 4, identified the following nine historic contexts as one framework for evaluating the historical significance of roads in Arizona:

1. Military Wagon Roads, 1846-1909
2. Privately Built Toll Wagon Roads, 1864-1871
3. Territorial Highways, 1909-1912
4. State Highway System, 1912-1939
5. Federal Aid Projects, 1917-1933
6. Roads Built on Federal Lands, 1917-1926
7. Depression-Era Road Projects, 1934-1939
8. Road Construction during World War II, 1941-1945
9. Outstanding Road Engineering, 1912-1956

Certainly, other historic themes and contexts can be defined to evaluate the historical significance of roads, but these contexts provide a basis for evaluating roads as roads, rather than as an adjunct to other themes such as tourism, or development of agriculture and mining.

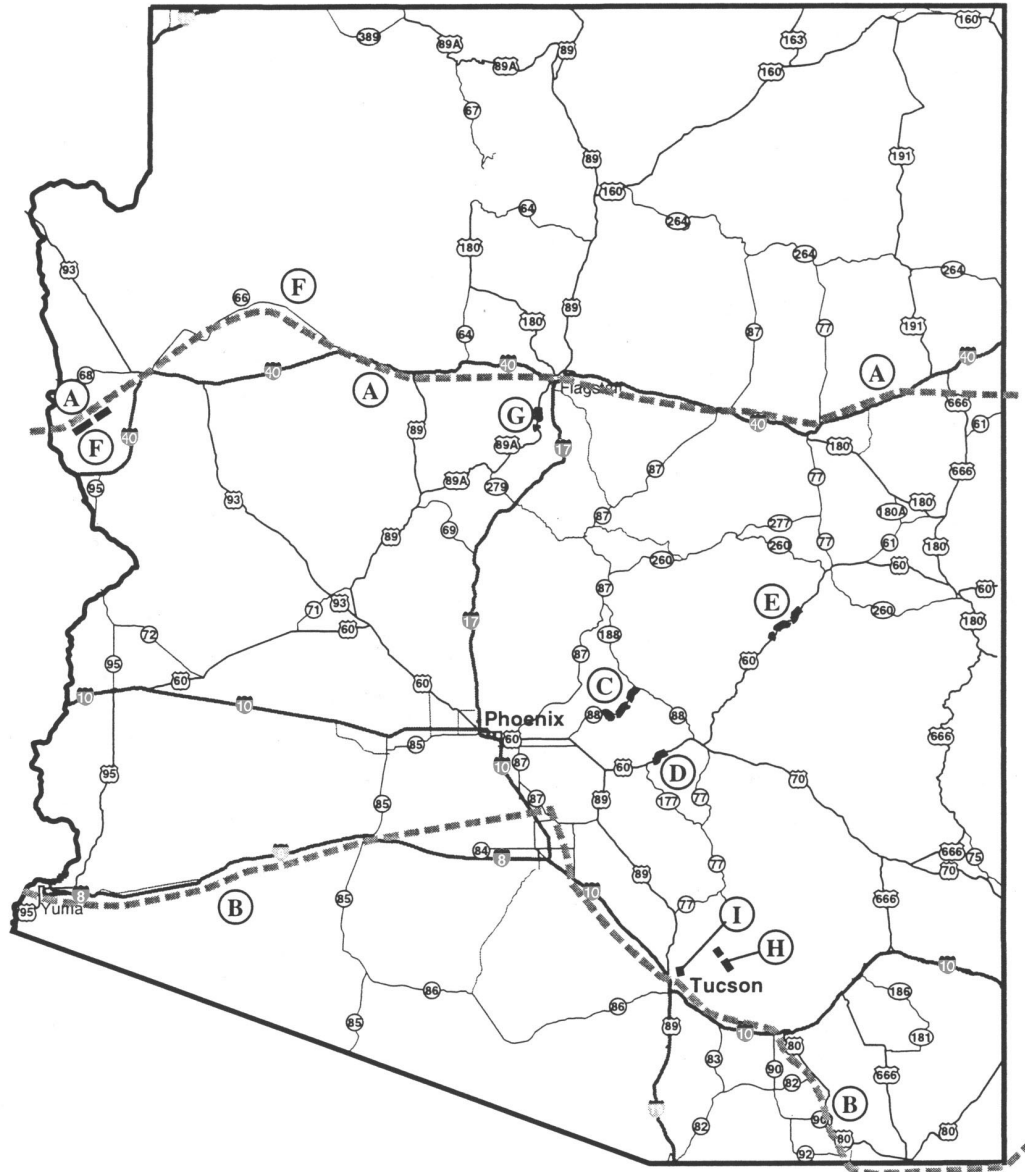
These contexts provide a statewide framework for evaluating the National Register eligibility of roads, under Criteria A, B, and C. Investigation of some roads may have the potential to yield important information and therefore be eligible under Criterion D as well. However, the written documentation of many roads commonly will provide more information than archaeological investigations. Exceptions could include situations where artifacts directly associated with a road may provide important information about the period of significance of a poorly documented road, or where a road is associated with important features that are not well documented.

Roads associated with the first two historic contexts listed above reflect use of non-motorized vehicles. The Beale Wagon Road and Cooke's Wagon Road are the two major nineteenth-century military wagon roads built across Arizona (Figure 50). Reasonably intact sections of these road are likely qualify for listing in the National Register under Criterion A as well as Criterion B. If they retain reasonable integrity, less well known military wagon roads also may qualify for listing, along with privately constructed nineteenth-century toll wagon roads. Wright and others (1997) provide a useful case study for distinguishing character defining segments of the La Grita Toll Road, and those that have lost historic integrity. Segments of important wagon roads may be preserved in Arizona, but they are expected to be uncommon.

The third historic context listed above, territorial highways from 1909 to 1912, reflect efforts that resulted in construction of 243 miles of roads for motorized vehicles during a brief period of time before Arizona achieved statehood. Two highways, known as the North-South and East-West highways, were designated with the goal of connecting Arizona county seats. Very little progress was made in developing the North-South highway. The East-West highway approximated the parts of the alignments of the later U.S. Highways 70 and 80. Because the routes followed by the territorial highways continued to be of crucial importance, the early roads themselves were reconstructed as parts of the subsequent state highway system. Thus, intact segments of the territorial highways, related to the third context listed above, are likely to be rare.

The fourth through eighth historic contexts listed above reflect the state and federal funding programs for highway development. The majority of state and federal highways (excepting interstates) in use in Arizona today are associated with one or more of these historic contexts. The great number of these roads, typically built to very similar standards, creates the problem of determining which of these common types of roads may be worthy of preservation .

Two roads reflecting the context of the state highway system from 1912 to 1939, stand out as important—the Apache Trail and Route 66. They also are distinctive, in part, because of how later usage, as well as public promotion and perhaps even sentimentality, created a special place for these roads in the lore of old Arizona. But more importantly, segments of both roads retain integrity of location, setting, feeling, association, and workmanship with respect to their period of significance. For different reasons, both roads were, at least in part, bypassed when not abandoned by more modern roads, and as a result they retain historic characteristics. The Apache Trail retains good historic integrity along much of its length east of Tortilla Flat as described in Chapter 5. Highway 66 retains similar distinctive features in the vicinity of Gold Road where twists and turns that would never be built today remain in use. Other rural stretches of Highway 66 are less distinctive though some are currently listed on the National Register. Stretches of Highway 66, associated with historic roadside architecture or historic towns, may well be regarded as contributing elements to larger districts or landscapes if they retain sufficient integrity.



[Alignments of the Beale Wagon Road and Cooke's Wagon Road are Approximate, Other potentially eligible Nineteenth century military and privately built wagon roads are not illustrated.]

- A** Beale Wagon Road (after Walker and Bufkin 1986:40) (Criteria A and B)
- B** Cooke's Wagon Road (after Walker and Bufkin 1986:40) (Criteria A and B)
- C** The Apache Trail, State Route 88 (Criteria A)
- D** Abandoned Segment of U.S. Highway 60 through Queen Creek Canyon (Criteria C)
- E** U.S. Highway 60 through Salt River Canyon (Criteria C)
- F** Route 66 at Gold Road Canyon (Criteria A)
- G** Old U.S. Highway 79 through Oak Creek Canyon (Criteria C)
- H** Catalina Highway (Criteria C)
- I** Miracle Mile (Criteria C)

**Figure 50. Some Important Historic Roads in Arizona**

The final historic context listed above recognizes that some outstanding engineering accomplishments are likely to be eligible under Criterion C. Five major road engineering accomplishments in Arizona are widely recognized as historically important (refer to Figure 50). They include two stretches of U.S. 60. One is the now abandoned segment through Queen Creek Canyon, partially described in Chapter 5. The other is the in-use segment through the Salt River Canyon, which was one of the first roads where essentially modern heavy road construction technology was employed to build a new highway through very difficult terrain (Figure 51).



**Figure 51. U.S. Highway 60 through the Salt River Canyon, circa 1940**

A third major engineering accomplishment is old State Route 79 (now State Route 89A) through Oak Creek Canyon, which also is described in Chapter 5 (Figure 52). The fourth is the Tucson-Mt. Lemmon (Catalina) Highway, another example of construction through extremely difficult terrain (Figure 53). A final somewhat different example of significant engineering—in this case not having to do with difficult terrain, but instead a “first of its kind” design—is the “Miracle Mile” segment of the Tucson-Florence Highway (U.S. Highway 80). This divided highway interchange, built in 1938, was the first to be designed and built in Arizona.





**Figure 52. Old State Highway 79 through Oak Creek Canyon, circa 1940**



**Figure 53. Catalina Highway, circa 1940**

## **HISTORICAL INTEGRITY**

It is important to remember that an important historic association is not enough to make an old road eligible for the National Register. In addition to historic significance, a road must retain sufficient integrity of location, setting, design, materials, workmanship, and feeling to convey that significance. Many of the most important transportation corridors in the state are old, and each generation has improved on those roads to meet growing traffic demands and improved safety standards. As a result, many of the most important routes of travel through Arizona have lost their historic integrity because of improvements made over the years.

It is important to verify that a road is in its historical alignment, although it also must be recognized that realignments are an inherent element of the periodic upgrading of roads and do not automatically disqualify a road from National Register eligibility. Other physical characteristics of roads that should be considered include roadway width, vertical and horizontal design, nature of shoulders, roadway surface, associated features such as bridges, culverts, retaining walls, and guard rails. Changes to the landscape also should be considered in assessing the setting and feeling of the road. Chapter 6 provides a more complete discussion of these issues.

## **THE NEXT STEP**

One indication that the evaluation of roads has lost sight of the forest for the trees is the multiple site numbers that have been assigned in the Arizona State Museum numbering system to different parts of the same highway. The museum has worked to impose some order by insisting that a single number be used for a given roadway. Although that strategy forces consideration of a broader context, it does little for the

researcher trying to evaluate a small segment of road within the typically narrow scope of a survey conducted to support Section 106 consultations that must be completed within a month or two.

The programmatic, big picture approach reflected in the November 2002 *Interim Procedures for the Treatment of Historic Roads* is a step in the direction of providing a strategy for dealing with larger preservation strategies as well as treating road segments encountered by individual cultural resource management projects. The *Interim Procedures* are modeled after a Section 106 Programmatic Agreement executed in 2001 by SHPO, Bureau of Reclamation, Salt River Project, and the Advisory Council on Historic Preservation for treatment of the main canals, laterals, and associated features of the historic Salt River Project. The strategy is based on the determination that the entire system is eligible for the National Register, and simultaneous recognition that it is not reasonable to try to stop maintenance and upgrading of all aspects of the functioning canal system to preserve all historic character-defining elements in place. A program for documenting the history and physical characteristics of the various elements is pursued to mitigate future modifications of the system as ongoing urbanization continues to transform the once rural landscape it served. Most small, routine projects affecting the system are expeditiously “cleared” without any requirement for additional treatment. The task of selecting which elements of the system warrant preservation in place and then working to preserve those elements is ongoing.

Similarly, the *Interim Procedures for the Treatment of Historic Roads* is based on the determination that the all in-use and abandoned segments of the “Historic State Highway System” (specifically excluding bridges and interstate highways) developed between 1912 and 1955 are eligible for the Arizona Register of Historic Places (without criteria being specified) and for the National Register under Criterion D. The two exceptions are Route 66 and the Apache Trail (“crown jewels”), which are considered eligible for the National Register under Criterion A. Projects that would not affect the location or function/design of elements of the system would be evaluated as having no adverse effect. If such projects affected any related roadway features (such as culverts, headwalls, and perhaps cuts and fills), they would be documented simply with black-and-white photographs and a tabular summary of their physical attributes. These procedures will expeditiously “clear” many routine maintenance and minor upgrade projects. Proposed projects that would affect the location or function/design of an element of the Historic State Highway System would result in determinations of adverse effect, and Section 106 procedures for addressing such effects would need to be followed.

Development of a Section 106 Programmatic Agreement to more formally define procedures will need to address how other potential “crown jewels” will be identified, and the nature of the historic documentation that will need to be developed. It is likely that the ADOT historic preservation program will be compiling narrative histories and documentation of all the major highways of the state system.

As this study evolved it came to focus on the state highways. The *Interim Procedures for the Treatment of Historic Roads* addresses those roads, but there are many tribal, forest, local government, and informal or private roads on Arizona’s landscape that are not addressed. The adoption of a more holistic approach for the state highway system has established a model for dealing with these other types of roads, and the procedures specifically allude to the relatively simple photographic and tabular documentation of roadway features as an acceptable treatment for effects on roads other than the state highway system.

At the other end of the spectrum, much of the interstate system is now approaching 50 years of age and State Historic Preservation Offices across the country are realizing that interstate highways warrant historic evaluation. That challenge may even instigate a more coherent national perspective for dealing with historic roads.

In closing, we are reminded that the American Association of State Highway Officials was founded in 1914 to “bring some sense to the every-which-way condition of highway construction” (Scott and Kelly 1988:13). That goal was achieved, and we are hopeful that further studies can build on this overview to bring more sense to the every-which-way of evaluating the historic values of roads.